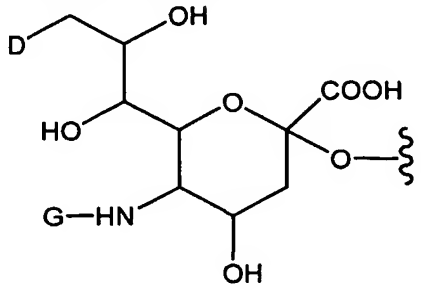
WHAT IS CLAIMED IS:

1. A Granulocyte Colony Stimulating Factor peptide comprising the moiety:



wherein

D is a member selected from -OH and R^1-L-HN-;

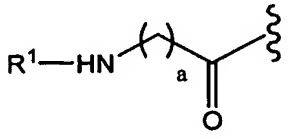
G is a member selected from R^1-L- and -C(O)(C_1-C_6)alkyl;

R^1 is a moiety comprising a member selected a moiety comprising a straight-chain or branched poly(ethylene glycol) residue; and

L is a linker which is a member selected from a bond, substituted or unsubstituted alkyl and substituted or unsubstituted heteroalkyl,

such that when D is OH, G is R^1-L-, and when G is –C(O)(C_1-C_6)alkyl, D is R^1-L-NH-.

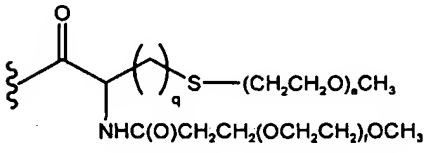
2. The peptide according to claim 1, wherein L-R^1 has the formula:



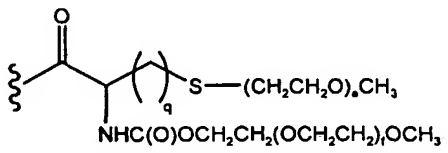
wherein

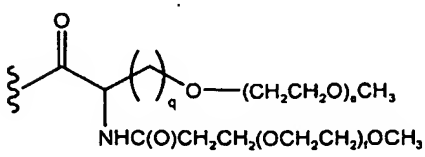
a is an integer from 0 to 20.

3. The peptide according to claim 1, wherein R^1 has a structure that is a member selected from:

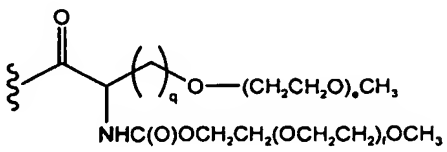


;





; and

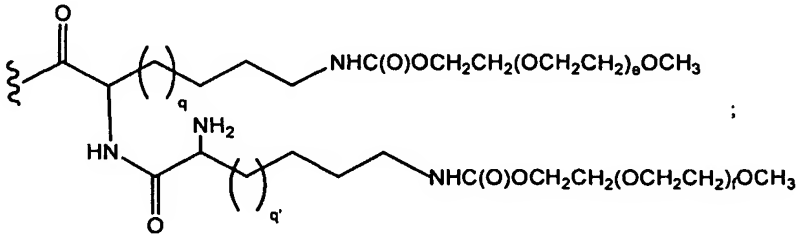


wherein

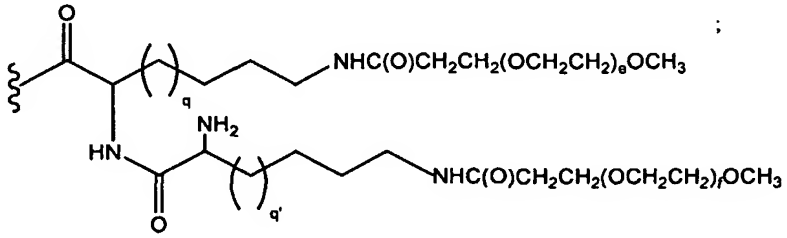
e and f are integers independently selected from 1 to 2500; and

q is an integer from 0 to 20.

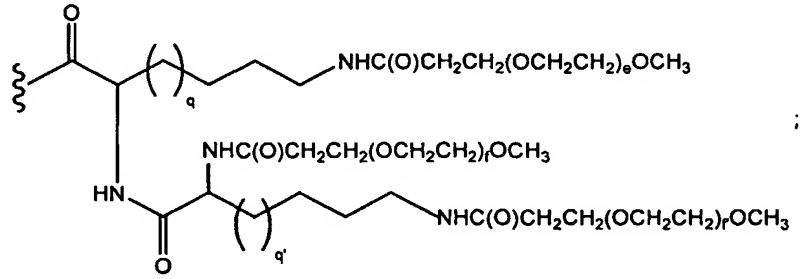
4. The peptide according to claim 1, wherein R^1 has a structure that is a member selected from:



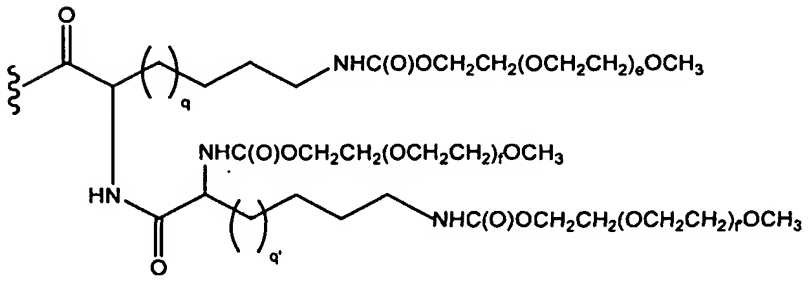
;



;



; and

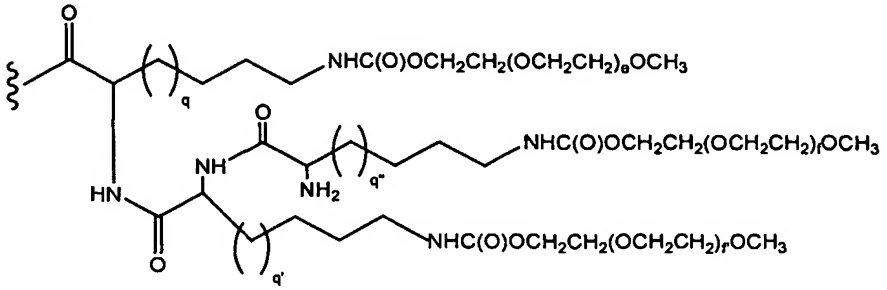


wherein

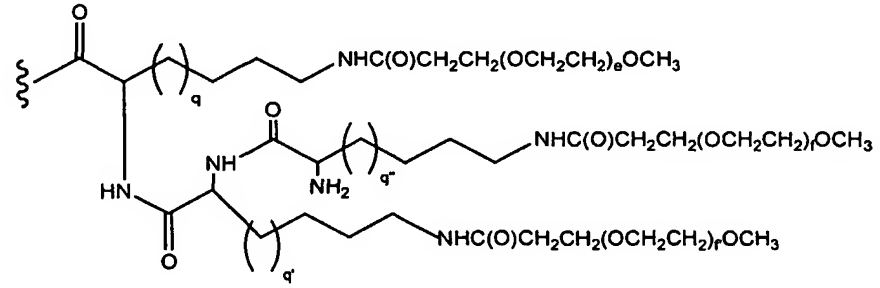
e, f and f' are integers independently selected from 1 to 2500; and

q and q' are integers independently selected from 1 to 20.

5. The peptide according to claim 1, wherein R^1 has a structure that is a member selected from:



; and

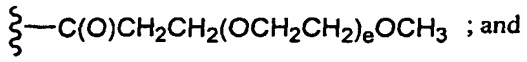


wherein

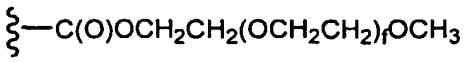
e, f and f' are integers independently selected from 1 to 2500; and

q, q' and q"are integers independently selected from 1 to 20.

6. The peptide according to claim 1, wherein R^1 has a structure that is a member selected from:



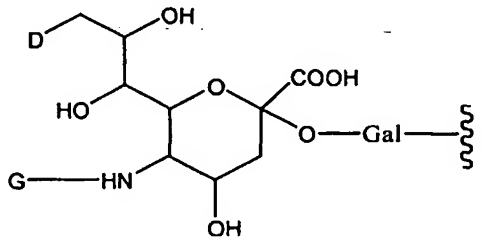
; and



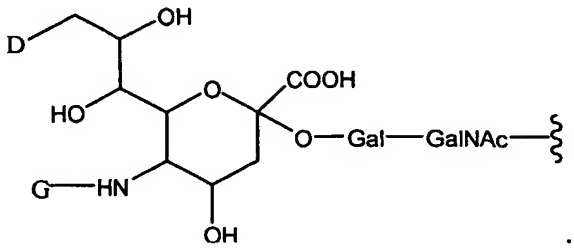
wherein

e and f are integers independently selected from 1 to 2500.

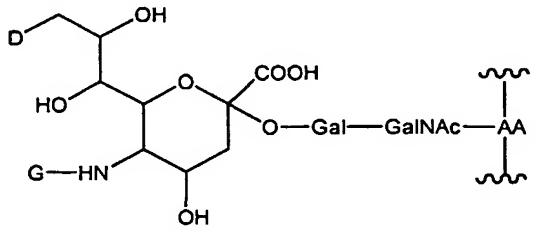
7. The G-CSF peptide according to claim 1, wherein said moiety has the formula:



8. The G-CSF peptide according to claim 1, wherein said moiety has the formula:



9. The G-CSF peptide according to claim **1**, wherein said moiety has the formula:



wherein

AA is an amino acid residue of said peptide.

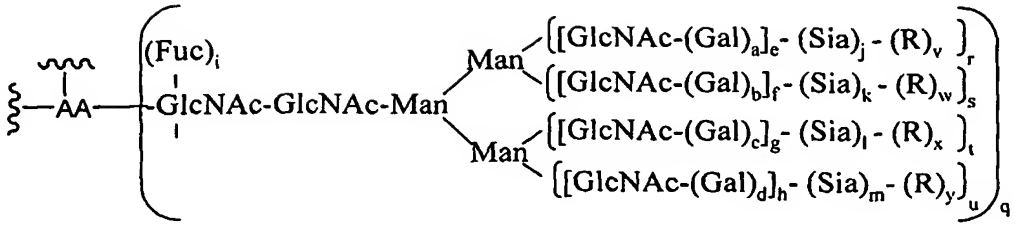
10. The G-CSF peptide according to claim **9,** wherein said amino acid residue is a member selected from serine or threonine.

11. The G-CSF peptide according to claim **1,** wherein said peptide has the amino acid sequence of SEQ. ID. NO:1.

12. The G-CSF peptide according to claim **11,** wherein said amino acid residue is threonine at position 133 of SEQ. ID. NO:1.

13. The peptide according to claim 1, wherein said peptide has an amino acid sequence selected from SEQ. ID. NO:1 and SEQ ID NO:2.

14. The G-CSF peptide according to claim **1,** wherein said moiety has the formula:



wherein

a, b, c, d, i, r, s, t, and u are integers independently selected from 0 and 1;

q is 1;

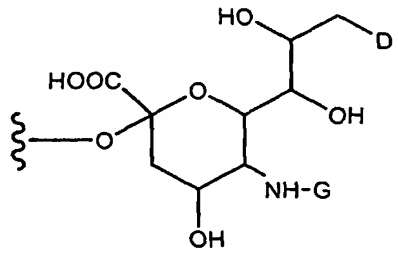
e, f, g, and h are members independently selected from the integers from 0 to 6;

j, k, l, and m are members independently selected from the integers from 0 and 100;

v, w, x, and y are independently selected from 0 and 1, and least one of v, w, x and y is 1;

AA is an amino acid residue of said G-CSF peptide;

Sia-(R) has the formula:



wherein

D is a member selected from -OH and R^1-L-HN-;

G is a member selected from R^1-L- and -C(O)(C_1-C_6)alkyl;

R^1 is a moiety comprising a member selected a straight-chain or branched poly(ethylene glycol) residue; and

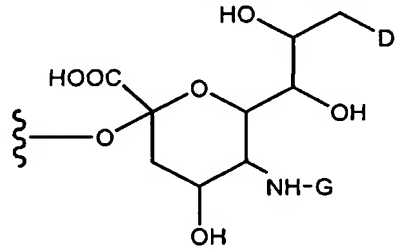
L is a linker which is a member selected from a bond, substituted or unsubstituted alkyl and substituted or unsubstituted heteroalkyl,

such that when D is OH, G is R^1-L-, and when G is –C(O)(C_1-C_6)alkyl, D is R^1-L-NH-.

15. The peptide according to claim 14, wherein said amino acid residue is an asparagine residue.

16. The peptide according to claim 1, wherein said peptide is a bioactive Granulocyte Colony Stimulating Factor peptide.

17. A method of making a G-CSF peptide conjugate comprising the moiety:



wherein

D is a member selected from -OH and R^1-L-HN-;

G is a member selected from R^1-L- and -C(O)(C_1-C_6)alkyl;

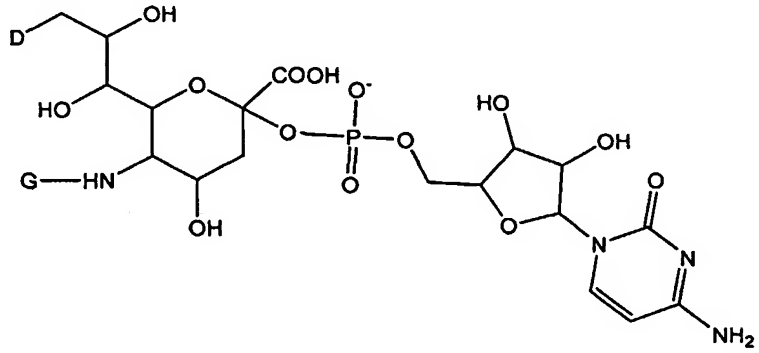
R^1 is a moiety comprising a member selected a straight-chain or branched poly(ethylene glycol) residue; and

L is a linker which is a member selected from a bond, substituted or unsubstituted alkyl and substituted or unsubstituted heteroalkyl,

such that when D is OH, G is R^1-L-, and when G is –C(O)(C_1-C_6)alkyl, D is R^1-L-NH-,

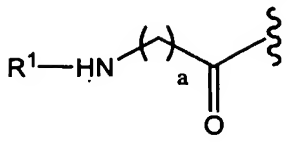
said method comprising:

(a) contacting a substrate G-CSF peptide with a PEG-sialic acid donor moiety having the formula:



and an enzyme that transfers said PEG-sialic acid onto an amino acid or glycosyl residue of said G-CSF peptide, under conditions appropriate for the transfer.

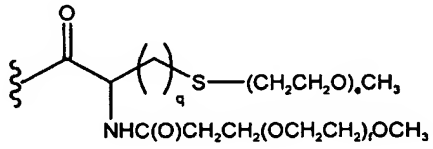
18. The method according to claim 17, wherein L-R^1 has the formula:



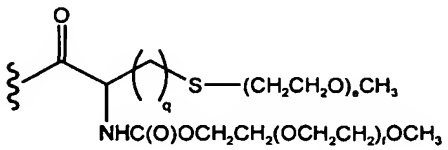
wherein

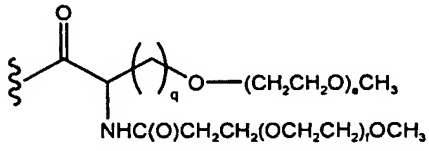
a is an integer from 0 to 20.

19. The method according to claim 17, wherein R^1 has a structure that is a member selected from:

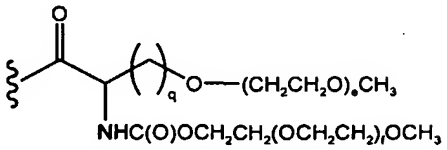


;





; and

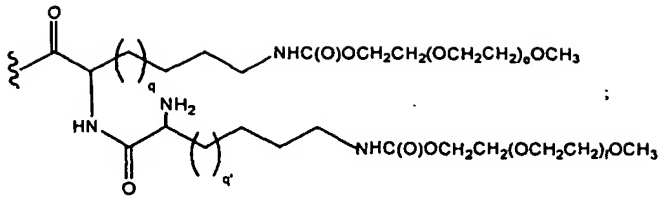


wherein

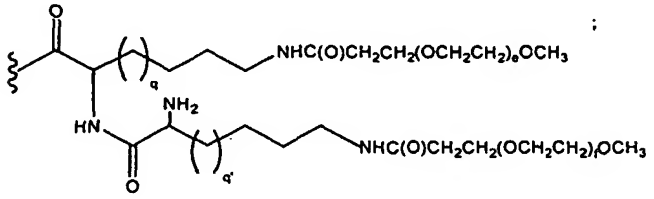
e and f are integers independently selected from 1 to 2500; and

q is an integer from 0 to 20.

20. The method according to claim 17, wherein R^1 has a structure that is a member selected from:



;



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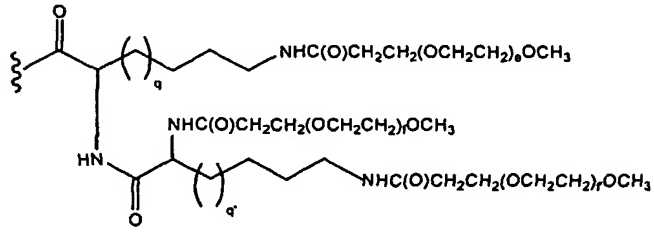
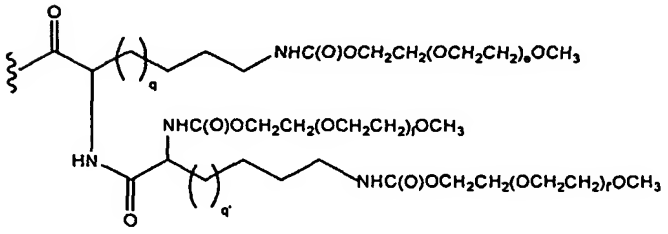


; and

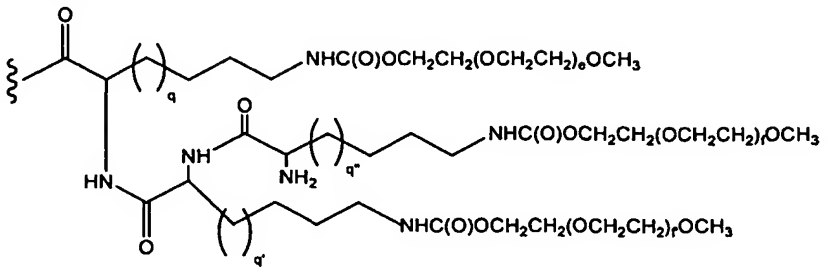


wherein

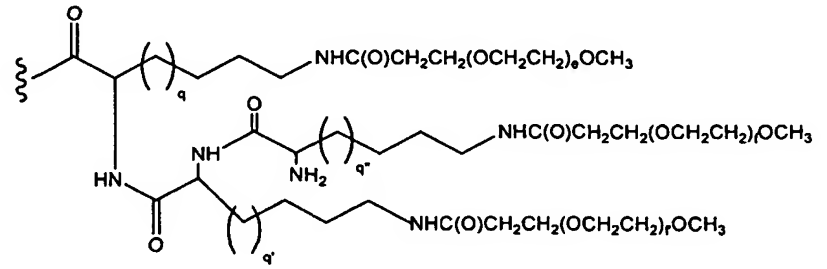
e, f and f' are integers independently selected from 1 to 2500; and

q and q' are integers independently selected from 1 to 20.

21. The method according to claim 17, wherein R^1 has a structure that is a member selected from:



; and

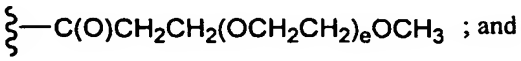


wherein

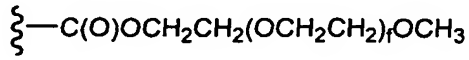
e, f and f' are integers independently selected from 1 to 2500; and

q, q' and q"are integers independently selected from 1 to 20.

22. The method according to claim 17, wherein R^1 has a structure that is a member selected from:



; and



wherein

e and f are integers independently selected from 1 to 2500.

23. The method of claim **17**, further comprising, prior to step (a):

(b) expressing said substrate Granulocyte Colony Stimulating Factor peptide in a suitable host.

24. The method of claim **17**, wherein said host is selected from an insect cell and a mammalian cell.

25. A method of stimulating inflammatory leukocyte production in a mammal, said method comprising administering to said mammal a peptide according to claim1.

26. A method of treating infection in a subject in need thereof, said method comprising the step of administering to the subject an amount of a peptide according to claim 1, effective to ameliorate said condition in said subject.

27. A pharmaceutical formulation comprising the Granulocyte Colony Stimulating Factor peptide according to claim 1, and a pharmaceutically acceptable carrier.

28. A method of refolding an insoluble recombinant granulocyte colony stimulating factor (GCSF) protein, the method comprising the steps of:

(a) solubilizing the GCSF protein; and

(b) contacting the soluble GCSF protein with a buffer comprising a redox couple to refold the GCSF protein, wherein the refolded GCSF protein is biologically active.